Strong Quadrangle, Maine

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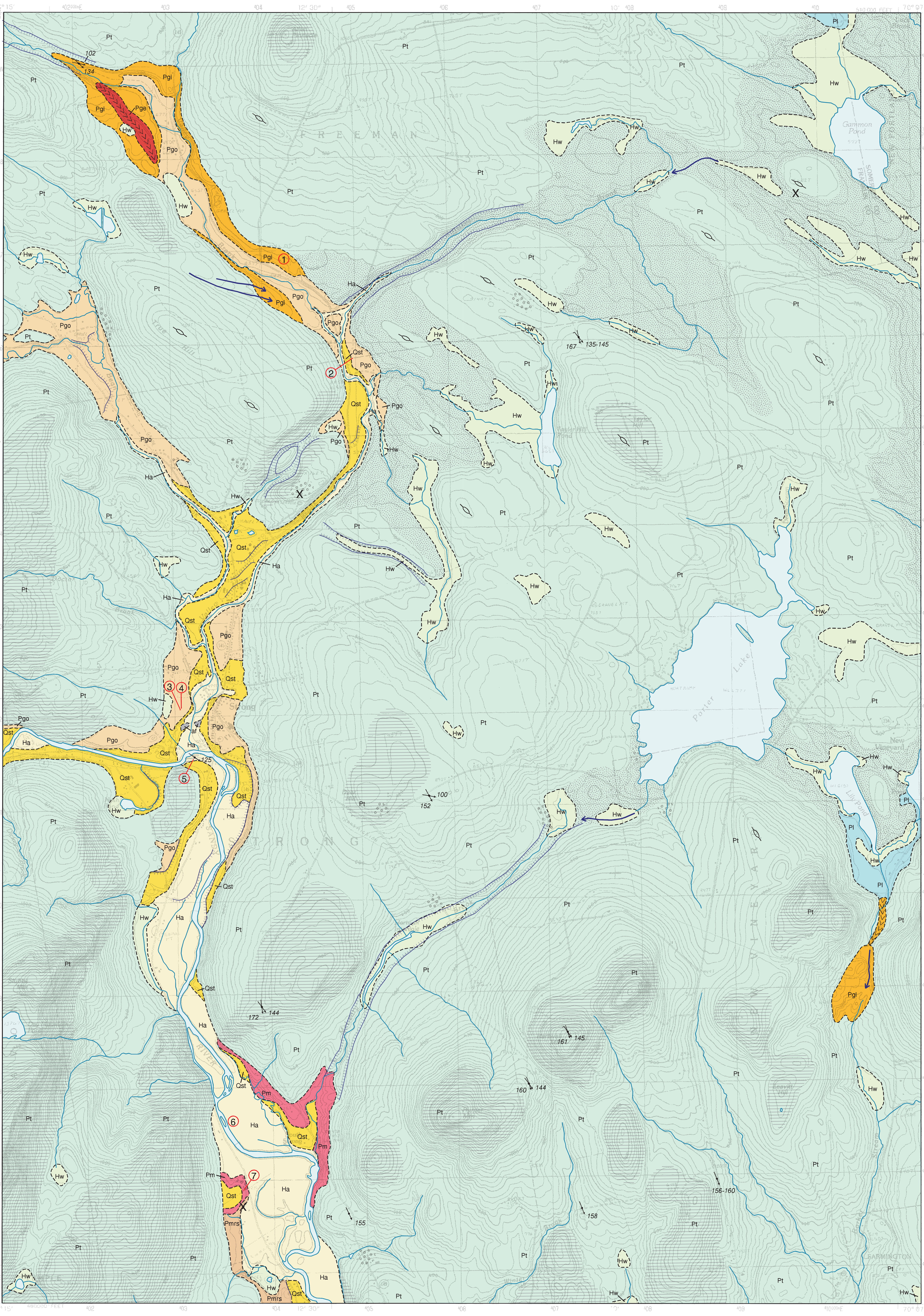
Surficial Geology



SOURCES OF INFORMATION

Surficial geologic mapping of the Strong quadrangle was conducted by Craig D. Neil during the 2002 field season. Additional data and editing by Thomas K. Weddle from field work conducted in 1990 and 2003.

Quadrangle Location

SCALE 1 : 24,000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET

TRUE NORTH

Topographic base from U.S. Geological Survey Strong quadrangle, scale 1:24,000 using standard U.S. Geological Survey topographic map symbols.

The use of industry, firm, or local government names on this map is for location purposes only and does not impute responsibility for any present or potential effects on the natural resources.

Notes: The first letter of each map unit indicates the general age of the unit:
- **H** = Holocene (postglacial deposit; formed during the last 10,000 years).
- **Q** = Quaternary (deposit of uncertain age, but usually late-glacial and/or postglacial).
- **P** = Pleistocene (deposit formed during glacial to late-glacial time, prior to 10,000 yr B. P. [years before present]).

af — **Artificial fill** - Variable mixtures of surficial sediments, rock fragments, and artificial materials, transported and dumped to build up roads, waterfronts, etc.

Ha — **Stream alluvium** - Sand, gravel, silt, and organic sediment. Deposited on flood plains of modern streams. Unit may include some wetland areas. Generally corresponds to the lower terrace levels and current flood plain of the Sandy River valley and its tributaries.

Hw — **Freshwater wetland deposit** - Peat, muck, silt, and clay. Deposited in poorly drained areas.

Qst — **Stream terrace deposit** - sand, silt, and gravel, and occasional muck on terraces cut into glacial deposits of the Sandy River valley and its tributaries. The highest elevation stream terraces are most likely Pleistocene age and may have had a glacial meltwater source.

Pl — **Lacustrine deposit** - Sand, gravel, and silt deposited in glacial lake located in extreme northeastern corner and eastern border of quadrangle.

Pgo — **Undifferentiated glacial outwash** - Sand and gravel deposited by meltwater streams.

Pge — **Esker deposits** - Sand and gravel deposited by glacial meltwater flowing in tunnels within or beneath the ice.

Pgi — **Undifferentiated ice-contact deposits** - Sand, gravel, and silt laid down within or against the ice.

Pm — **Marine deposits, undifferentiated** - May include sand and gravel as well as clay-silt deposited in late-glacial sea, formed in a variety of marine environments and locally modified by post-glacial erosion. May include deltaic, submarine fan, shoreline, and/or nearshore deposits.

Pmrs — **Marine regressive deposits** - Sand and gravel, minor silt deposited as fluvial or nearshore sediments graded to relative falling sea-level. Commonly occurs as sandy areas and is likely to be underlain by marine clay-silt.

Pt — **Till** - Light- to dark-gray, nonsorted to poorly sorted mixture of clay, silt, sand, pebbles, cobbles, and boulders; a predominantly sandy diamicton containing some gravel. Generally underlies most other deposits.

Bedrock exposures - Not all individual outcrops are shown on the map. Gray dots indicate individual outcrops; ruled pattern indicates areas of abundant exposures and areas where surficial deposits are generally less than 3 m (10 ft) thick.

Contact - Boundary between map units. Dashed where approximately located.

>>>>> **Esker crest** - Chevrons point in inferred direction of meltwater flow.

Glacially streamlined hill - Symbol shows trend of long axis, which is parallel to former glacial ice-flow direction.

135 135 **Glacial striation locality** - Arrow shows ice-flow direction inferred from striations on bedrock. Dot marks point of observation. Number is azimuth (in degrees) of flow direction. Flagged trend is older.

Meltwater channel - Channel eroded by glacial meltwater stream or outflow from glacial lake. Arrow shows inferred direction of water flow.

Large meltwater channel - Channel eroded by glacial meltwater stream or outflow from glacial lake. Hachured lines show extent of channel.

Scarp - Stream-cut bank caused by river erosion. Hatch marks point to lower surface.

X **Large boulder** - Site of exceptionally large glacially transported boulder.

Area of many large boulders.

Area where very sandy diamicton is found having the appearance of being reworked by flowing water or currents, possibly in a glacial lacustrine environment.

4 **Photo locality**

USES OF SURFICIAL GEOLOGY MAPS

A surficial geology map shows all the loose materials such as till (commonly called hardpan), sand and gravel, or clay, which overlie solid ledge (bedrock). Bedrock outcrops and areas of abundant bedrock outcrops are shown on the map, but varieties of the bedrock are not distinguished (refer to bedrock geology map). Most of the surficial materials are deposits formed by glacial and deglacial processes during the last stage of continental glaciation, which began about 25,000 years ago. The remainder of the surficial deposits are the products of postglacial geologic processes, such as river floodplains, or are attributed to human activity, such as fill or other land-modifying features.

The map shows the areal distribution of the different types of glacial features, deposits, and landforms as described in the map explanation. Features such as striations and moraines can be used to reconstruct the movement and position of the glacier and its margin, especially as the ice sheet melted. Other ancient features include shorelines and deposits of glacial lakes or the glacial sea, now long gone from the state. This glacial geologic history of the quadrangle is useful to the larger understanding of past earth climate, and how our region of the world underwent recent geologically significant climatic and environmental changes. We may then be able to use this knowledge in anticipation of future similar changes for long-term planning efforts, such as coastal development or waste disposal.

Surficial geology maps are often best used in conjunction with related maps such as surficial materials maps or significant sand and gravel aquifer maps for anyone wanting to know what lies beneath the land surface. For example, these maps may aid in the search for water supplies, or economically important deposits such as sand and gravel for aggregate or clay for bricks or pottery. Environmental issues such as the location of a suitable landfill site or the possible spread of contaminants are directly related to surficial geology. Construction projects such as locating new roads, excavating foundations, or siting new homes may be better planned with a good knowledge of the surficial geology of the site. Refer to the list of related publications below.

OTHER SOURCES OF INFORMATION

1. Neil, C. D., and Locke, D. B., 2003, Surficial materials of the Strong quadrangle, Maine: Maine Geological Survey, Open-File Map 03-63.
2. Neil, C. D., 2000, Significant sand and gravel aquifers of the Strong quadrangle, Maine: Maine Geological Survey, Open-File Map 03-100.
3. Thompson, W. B., 1979, Surficial geology handbook for coastal Maine: Maine Geological Survey, 68 p. (out of print).
4. Thompson, W. B., and Borns, H. W., Jr., 1985, Surficial geologic map of Maine: Maine Geological Survey, scale 1:500,000.